

How to Read a Fluid-Filled Biosafe Liquid Thermometer

How It Works

Fluid-filled biosafe liquid (bottle) thermometers consist of two parts. The first part is a glass sensing bulb connected to a glass tube with a numbered scale printed along the tube. Inside the tube is a liquid (usually mercury or colored alcohol) that rises and falls as the temperature changes in the immediate area of the sensing bulb. The second part is a bottle containing a biosafe liquid, such as glycol. The glass sensing bulb is immersed in the liquid. The liquid provides a buffer around the sensing bulb so that the reading does not fluctuate when the refrigerator or freezer door is opened or closed.



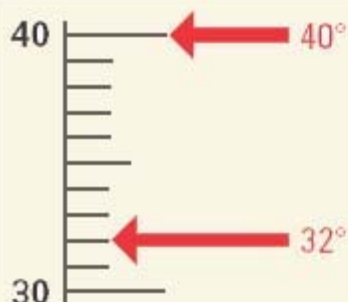
A fluid-filled biosafe liquid thermometer.

How to Read It

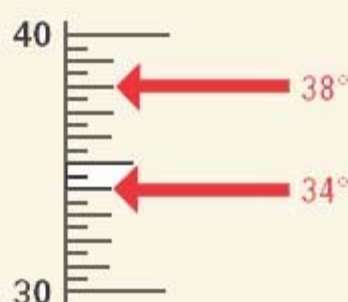
1. Examine the scale that is marked on the side. Determine if it is in Fahrenheit or Celsius or both.
2. When reading the temperature, the thermometer should be vertical and your eyes should be level with the top of the liquid in the glass tube. It is preferred that the thermometer is read while still inside the vaccine storage unit. However, if this is not possible, the thermometer may be removed from the unit, read at eye level, and quickly replaced.
3. The position of the top of the liquid along the scale indicates the temperature. Read the thermometer to the appropriate number of significant digits. Shown below are temperatures indicated on one-degree and half-degree Fahrenheit scales.



Reading a fluid-filled biosafe liquid thermometer.



**One-degree scale
(sample readings)**



**Half-degree scale
(sample readings)**

- Temperature Log for Vaccines (Fahrenheit)** Month/Year: June 2005 Days 1-18
- *Instructions:* Place an "X" in the box that corresponds with the temperature. The bracketed notes represent acceptable temperature ranges. If the temperature recorded is in the bracketed note, 1. Store the vaccine under proper conditions as quickly as possible. 2. Call the vaccine manufacturer to determine whether the product of the vaccine has been affected. 3. Call your health department to report the problem. 4. Document the action taken on the second side of this log.

[illegible]

Note: ⚠ Immediate action must be taken to correct improper vaccine storage conditions.

Date	Time	Storage Unit Name	Temp	Problem	Action Taken	Results	Initials
6/14/20	10:00 am	Vaccine 20°F	20°F	Poliovirus Inactivated Salk's Oral Poliovaccine	Supervisor noticed that thermometers in vaccine area were frozen. Reached room last door with thermostat.	Poliovirus Inactivated switched at 80°F and frozen Poliovaccine stored at 20°F	Dr. [Signature]

Reverse: Vaccine Storage Troubleshooting Record.